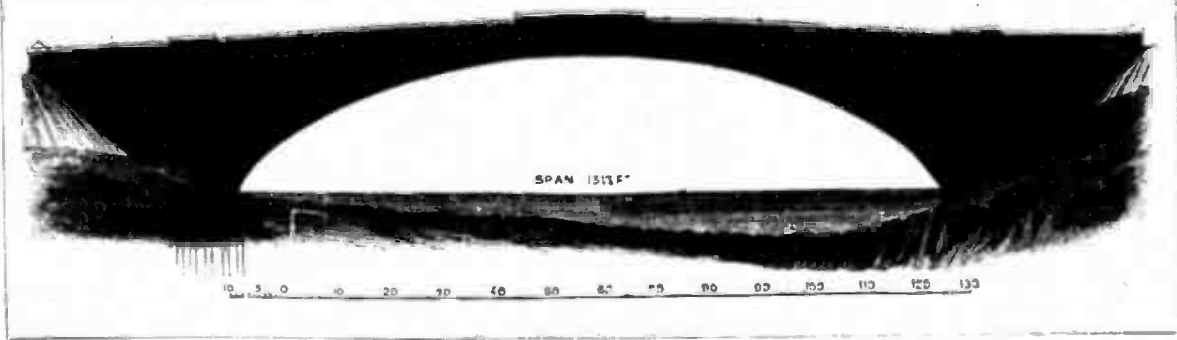


## ASHIESTEEL BRIDGE.



abutments for those vast vaults, by disposition of the walls of the different apartments.

As Brunelleschi—when questioned by the pope as to his celebrated boast, replied, "Yes, give me a fulcrum and I can move the world;" so, in the next step in the progress of the arch, the architect of the Church of Sta. Sophia might have said, "Give me an abutment; and I can suspend a dome in the air." The professor gave a clear explanation of the manner in which this was effected, by means of "pendentives;" he then alluded to the night of darkness in which Europe existed subsequently, and the use of the Byzantine style, and showed how the pointed arch—the next step—might have originated by omitting the crown of the lofty vault of the hall of the baths, and prolonging the lines of the haunches, which would then meet in a point. He also showed how naturally the column placed against a pier, in the same apartment, and supporting the portion of the vaulting here concentrated upon it, might have led to the clustered columns and shaft supporting the groining in Gothic buildings. So, said the professor, here we saw instances how, from one link to another, the gradual chain of architectural progress was carried forward.

After describing the plan of Ely Cathedral, he passed to the condition of the art in Italy. In the earlier period of Italian architecture, we found that each house was a kind of fortress, and whatever decoration was practised was reserved for the internal courts. But when, with the revival of learning in Italy, a state of comparative quiet accompanied it, then a new field was open for the inventions of architects. Bramante, for instance, adopted a double order; and this, perhaps suggested by previous works, was certainly not found in the antique. Vignola employed cantilevers in an entablature, as afterwards practised by Sir Christopher Wren. Vignola might have gained some idea of this method from ancient paintings, but certainly not from the temple at Baalbec, where a similar method is found, for Vignola had never heard of that place. Another feature, the window, underwent important modifications. Previously small, and shuttered below;—in the palace at Florence it was ornamented with a pediment, and other decorations. At first, so great an innovation seemed as if it would occasion nothing but ridicule, but this method of treating the window had endured ever since. These features, therefore, and others like these, had never previously been seen in architecture: this, then, was truly invention, and this the only description of novelty which could be successful.

These instances, the professor concluded, he had cited to show that, by attention to points arising out of structure, in our buildings, we might best attain excellence; but we must, at the same time, impress the character of the nineteenth century upon our works, and whilst recognising the value of precedent and authority, not shut our eyes to every other important consideration.

**SUPPLY OF WATER TO THE CITY.**—It is stated that the New River Company have agreed to furnish water to the whole of the courts and alleys in the city twice a day, *gratis*, for sanitary purposes.

## ASHIESTEEL BRIDGE—WHINSTONE CONSTRUCTIONS.

SIR.—In the number of *THE BUILDER* for December, 1848, page 617, we observe a short notice of a bridge which we built last year at Ashiesteel, given in a report of a meeting of the Institute of British Architects,\* in which Mr. Burn expressed his disapprobation of the material of which the bridge was built, by cautioning the junior members against the impression that this was a good material for construction.

What a strange conclusion he comes to! An arch has been built of 131½ ft. span to a radius of 110 feet, all of whinstone rubble, and yet Mr. Burn cautions the junior members against the impression that this is a good material. Why, Mr. Burn (unintentionally, we believe) does us much more honour than we think we are entitled to, as we differ from him so far as to hold that the material is good, more particularly for arches, and we beg to observe that it is a material far too much underrated by most of the architects and engineers of the present day. In many situations in Scotland and elsewhere, a saving from the use of it might be had, from three to four hundred per cent., in place of hewn stone or granite. A good whinstone arch is equal, if not superior, to hewn stone, the one being much more durable than the other. We never heard of a whinstone arch falling from age, and there are some in this country many hundred years old.

With this we beg to hand you a small sketch of our bridge, which we hope you may think worthy a place in *THE BUILDER*.

JOHN AND THOS. SMITH.

Darnick.

## ON THE CONSTRUCTION OF PRISONS.

THERE is no department in architecture which should call forth more of the study and attention of the architect than that of "prison-building," and being aware of many of the deficiencies which are apparent in the edifices already erected, the writer ventures to offer the following remarks to the public, trusting they may meet with a favourable reception, and be productive of beneficial results. Having for some time made this subject my particular study, and having taken every care to investigate, as far as possible, those defects to which I allude, I am inclined to hope that, in calling attention to it, I may not be considered as having entered the field unprepared. In this enlightened age, when art and science are making rapid strides to perfection, I consider it the duty of every man to contribute as much as may lie in his power to the advancement of those principles which are calculated to aid society in its moral and refined improvement. As there is no class of persons on whom more labour should be bestowed, in endeavouring to effect their reclamation, than the inhabitants of a prison, so should it be the utmost desire of every well-wisher to society, to neglect no opportunity of assisting in this praiseworthy object. Before immediately entering into a detail of the construction, I shall make a few preliminary remarks as to the advantages which

\* It was further described in our last number but one, p. 34, ante.

one species of discipline appears to possess over another, which cannot be deemed inconsistent, as the plan of a prison will materially depend on the system which it is intended to carry into effect.

Punishment is the reward of crime; but though it is indispensably necessary for its suppression, and for the protection of the community against the assaults and malicious intents of the wicked, yet this alone is not the only point we are to consider;—there is another and a more exalted one, which should receive our strict attention—namely, the "reclamation of offenders." Since prevention is better than the cure, let us rather study the best possible means for the suppression of vice, than the most severe and painful mode of punishing those who have fallen victims to it. How often are we afforded examples of punishment strengthening crime: the greater the chastisement received by a man hardened in villany, the more determined he becomes to resist the arm of the law. What benefit, then, does society receive, if the individual sentenced to undergo a certain term of confinement within the walls of a prison—that time having expired—comes forth again upon the world unimproved, and contemplating the commission of more wickedness? It does not follow, because a man may fall a victim to passions which induce him to commit a crime, and for which the law sentences him to be incarcerated, that he may not be possessed of qualities which, if properly developed, would not only enable him to occupy a respectable position in society, but would also tend to the suppression of those evil propensities to which human nature is subject. In what does the line of demarcation consist, which is so widely drawn between the wild untutored savage and the educated man? In what? but in the cultivation of the mental faculties and understanding which man, in his most primitive state, is endowed with. Then it is the duty of those who are invested with authority to exercise their power both humanely and judicially; not only to reward the good, and punish the wicked, but, by a careful education of the uncultivated faculties of the latter, to try and restore to society those who, perhaps from want of instruction alone, are looked upon as useless members. This is the grand desideratum to be obtained, and punishment alone will not effect it. Let the understanding and feelings of the prisoner be appealed to; let him be instructed in those principles which tend to the exaltation of the mind; let his habits be well regulated; and, above all, let him have sufficient time and opportunity for meditation and reflection. In the temptations and allurements of a sinful world, intoxicated by pleasure or hardened by misfortune—contaminated by bad examples or driven to desperation by the artful cunning or malicious advice of depraved associates,—many a man, possessing innately good and honest principles, may be prematurely hurried into sin, which, if a little time were afforded for reflection, never would have been committed.

When I enumerate the many beneficial influences which reflection has upon the mind, I wish it also to be understood that a certain regimen of discipline is necessary to be observed, which may aid in the furtherance of the objects for which it is intended.